

WORK INSTRUCTION		
Title: <b>Replacement of IV/OC Port Closure Bolts and O-Rings</b>		
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Approved for Use by: <u>Mike Brown</u> Effective Date: <u>October 2005</u>		
Applicable Drawings: <ul style="list-style-type: none"><li>X-106-500-SNP (Sheets 1-9) RH-TRU 72-B Packaging SARP Drawings</li></ul>		
SARP Requirements: <ul style="list-style-type: none"><li>Chapter 8.0, Section 8.2.3.1. Threaded components shall be inspected before each use and annually for stripped or deformed threads and replaced, if damaged.</li><li>Chapter 8.0, Section 8.2.4.3. O-rings and gaskets shall be replaced annually or when damage occurs.</li></ul>		
Tools Required: <ul style="list-style-type: none"><li>72-B Leak Test Tool - 2078-500-01</li><li>Calibrated torque wrench (15 to 20 lb-ft)</li><li>3/4-in. 12-pt drive socket</li><li>Stainless steel tube brush for cleaning ports: 1-in.</li><li>Stainless steel tube brush for cleaning ports: 1-1/8-in.</li><li>Wood or plastic O-ring removal tool (popsicle stick, tube removal tool, etc.)</li><li>Lead wire seal crimper</li><li>Varian 959 Helium Mass Spectrometer Leak Detector (MSLD) with an 8.2 cfm backing pump or LH UL 100+ MSLD with a 0.9 cfm backing pump</li><li>Temperature measuring device (centigrade scale) (calibrated)</li><li>He standard leak for calibrating the leak detector (shall be calibrated to a minimum sensitivity of <math>1.3 \times 10^{-7}</math> standard cubic centimeters per second (scc/s) of air, which equates to a leakage rate of <math>2.6 \times 10^{-7}</math> scc/s He)</li></ul>		
Spare Parts Required: <ul style="list-style-type: none"><li>The spare parts are identified in the work instruction steps. All spare parts listed are controlled and shall be recorded on the Maintenance Record.</li></ul>		
Materials Required: <ul style="list-style-type: none"><li>Vacuum grease</li><li>Denatured alcohol or equivalent</li><li>400 to 600 grit emery cloth</li><li>Lint-free rags</li></ul>		

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<ul style="list-style-type: none"><li>• Metal tags (leak test required) (PN 2077-02013)</li><li>• Lead wire seals (PN 2077-02012 or equivalent)</li></ul>		
Safety Requirements:		
<ul style="list-style-type: none"><li>• Safety will be observed in accordance with site requirements.</li></ul>		
Prerequisite Conditions:		
<ul style="list-style-type: none"><li>• The port closure bolts have been removed from the cask and made accessible.</li></ul>		
Instruction Steps:		
<ul style="list-style-type: none"><li>• The spare parts listed below shall be replaced with like-for-like components from the approved spare parts supply.</li><li>• The replacement of these parts shall be documented on the Maintenance Record.</li><li>• This instruction <b>is not required to be attached</b> to the Maintenance Record, but may be used as a checklist during performance of maintenance.</li><li>• There is no requirement to replace components in the sequence shown here.</li></ul>		
General Requirements:		
<ul style="list-style-type: none"><li>• Inspect threads and O-ring grooves for damage.</li><li>• <b>ALWAYS</b> replace the O-ring if the port closure bolt is replaced.</li><li>• <b>DO NOT USE</b> metal tools to remove O-rings.</li><li>• Clean the port threads using appropriate size stainless steel tube brush and/or emery cloth.</li><li>• Clean the brushed area using lint-free rags and alcohol.</li><li>• If only the O-ring is to be changed, thoroughly clean closure bolt threads and O-ring groove using alcohol and lint-free rag.</li><li>• Lightly coat the new O-ring with vacuum grease and install on the plug.</li></ul>		
<input type="checkbox"/>	OC Gas Sampling Port Closure Bolt . . . . . (2078-300-10) PO#_____	
<input type="checkbox"/>	OC Gas Sampling Port Closure Bolt O-ring Seal . . . . . (2078-300-01) PO#_____	
1.0	Install and torque to 15 to 20 lb-ft (record serial number [S/N] and date due for recalibration of torque wrench on the maintenance record).	
2.0	If shipping radioactive waste, perform a Preshipment (helium) Leakage Rate Test and attach documentation to the Maintenance Record.	
3.0	If shipping an empty container, wire/crimp a "Leak Test Required" tag to the outer cask pad eye with the name of the replaced O-ring written in indelible ink on the reverse side of the tag and annotate on the Maintenance Record that the tag was attached.	

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<input type="checkbox"/>	OC Seal Test Port Closure Bolt . . . . .	(2078-300-11)	PO# _____
<input type="checkbox"/>	OC Seal Test Port Closure Bolt O-Ring Seal . . . . .	(2078-300-02)	PO# _____
1.0	Install and torque to 15 to 20 lb-ft (record S/N and date due for recalibration of torque wrench on the maintenance record).		
2.0	If shipping radioactive waste, perform a Preshipment (helium) Leakage Rate Test and attach documentation to the Maintenance Record.		
3.0	If shipping an empty package, wire/crimp a "Leak Test Required" tag to the outer cask pad eye with the name of the replaced O-ring written in indelible ink on the reverse side of the tag, and annotate on the Maintenance Record that the tag was attached.		
<input type="checkbox"/>	IV Gas Sampling Port Closure Bolt . . . . .	(2078-200-10)	PO# _____
<input type="checkbox"/>	IV Gas Sampling Port Closure Bolt Upper O-ring Seal .	(2078-200-01)	PO# _____
<input type="checkbox"/>	IV Gas Sampling Port Closure Bolt Lower O-ring Seal .	(2078-200-02)	PO# _____
1.0	Install and torque to 15 to 20 lb-ft (record S/N and date due for recalibration of torque wrench on the Maintenance Record).		
2.0	If shipping radioactive waste, perform a Preshipment (helium) Leakage Rate Test and attach documentation to the Maintenance Record.		
3.0	If shipping an empty package, wire/crimp a "Leak Test Required" tag to the outer cask pad eye with the name of the replaced O-ring written in indelible ink on the reverse side of the tag and annotate on the Maintenance Record that the tag was attached.		
<input type="checkbox"/>	IV Backfill Port Closure Bolt . . . . .	(2078-200-11)	PO# _____
<input type="checkbox"/>	IV Backfill Port Closure Bolt O-ring Seal . . . . .	(2078-200-03)	PO# _____
1.0	Install and torque to 15 to 20 lb-ft (record S/N and date due for recalibration on the maintenance record).		
2.0	If shipping radioactive waste, perform a Preshipment (helium) Leakage Rate Test and attach documentation to the Maintenance Record.		
3.0	If shipping an empty container, wire/crimp a "Leak Test Required" tag to the outer cask pad eye with the name of the replaced O-ring written in indelible ink on the reverse side of the tag and annotate on the Maintenance Record that the tag was attached.		
<input type="checkbox"/>	IV Seal Test Port Closure Bolt . . . . .	(2078-200-12)	PO# _____
<input type="checkbox"/>	IV Seal Test Port Closure Bolt O-ring Seal . . . . .	(2078-200-04)	PO# _____
1.0	Install plug and torque to 15 to 20 lb-ft (record S/N and date due for recalibration of torque wrench on the maintenance record).		
2.0	If shipping radioactive waste, perform a Preshipment (helium) Leakage Rate Test and attach documentation to the Maintenance Record.		

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3.0	If shipping an empty container, wire/crimp a "Leak Test Required" tag to the outer cask pad eye with the name of the replaced O-ring written in indelible ink on the reverse side of the tag and annotate on the Maintenance Record that the tag was attached.		
Verification Requirements:			
1.0	Spare parts used are listed on the Maintenance Record.		
2.0	Helium leak test documentation is attached to the Maintenance Record.		
3.0	If the helium leak test has been deferred, a "Leak Test Required" tag is attached to the packaging and is annotated on the Maintenance Record.		
4.0	Work performed is listed on the Maintenance Record.		
5.0	Work Instruction is listed on the Maintenance Record.		